



Vision for Marine and Coastal Services Digital Products

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Office of Climate, Water and Weather Services**

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Session Outline for Marine, Coastal, and Tropical Services

- **Mission**
- **Vision for Digital Products**
- **Forecast Areas of Responsibility**
- **Marine Elements in NDFD**
- **Proposed Future Marine, Coastal, and Tropical Elements in NDFD**
- **New Product Prototyping**
- **Research Activities in Support of Proposed New Products**
- **Wind Grids for Hurricane Events**



Marine and Coastal Weather Services

Mission and Responsibilities



- To lead the U.S. Coastal and Marine weather forecast and warning programs for the protection of life and property, promotion of economic benefits, and the enhancement of quality of life.
- **Manage Products and Services for:**
 - *Tropical Cyclone Program*
 - Tropical Prediction Center (TPC)
 - Central Pacific Hurricane Center (CPHC)
 - Weather Forecast Offices (WFOs)
 - *Marine Program*
 - Ocean Prediction Center (OPC)
 - Tropical Prediction Center - Tropical Analysis Forecast Branch
 - Weather Forecast Offices (WFOs)
 - *Coastal and Great Lakes Program*
 - Weather Forecast Offices (WFOs)



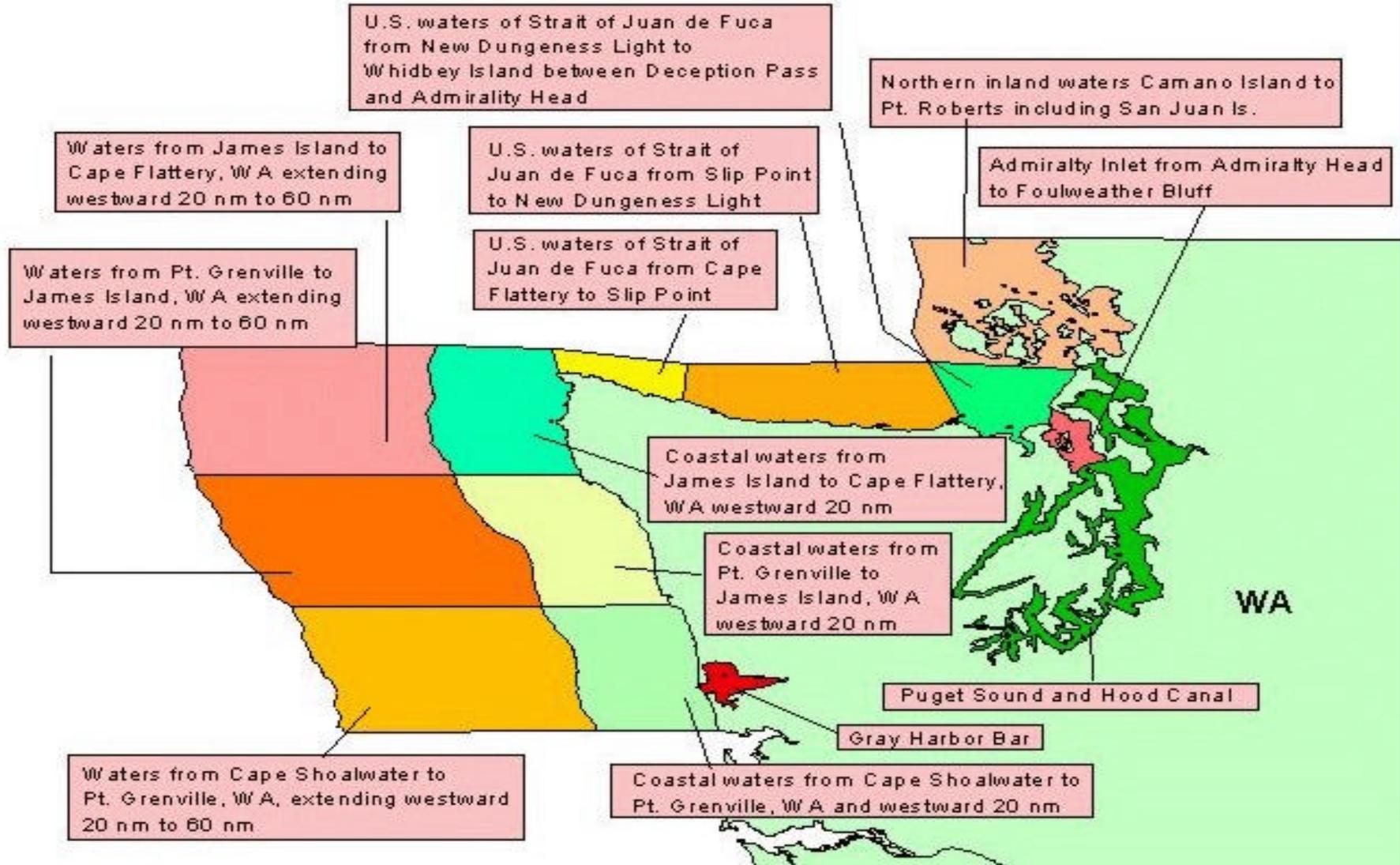
Marine and Coastal Weather Service Vision for Digital Products



- Provide weather elements we now describe in text format in gridded and graphical formats
- Extend from current deterministic approach for products to increase availability of gridded and graphical probabilistic forecasts
- Provide seamless product suites from WFOs and National Centers
- Extend products suite to include gridded and graphical threat outlooks for Marine, Coastal and Tropical hazards



Coastal Waters Forecast Zones

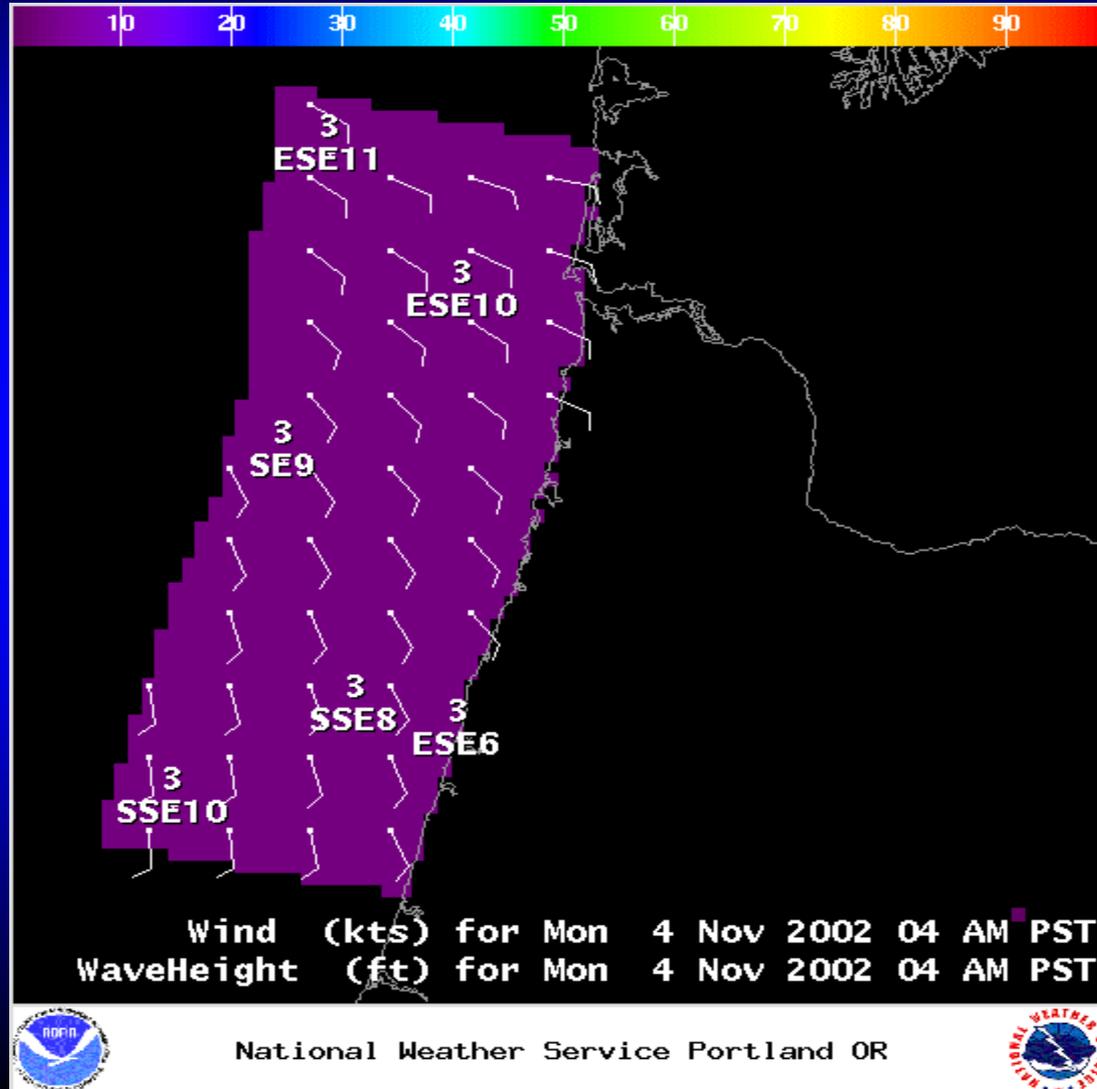




Forecast Winds and Waves for Coastal Waters Zones

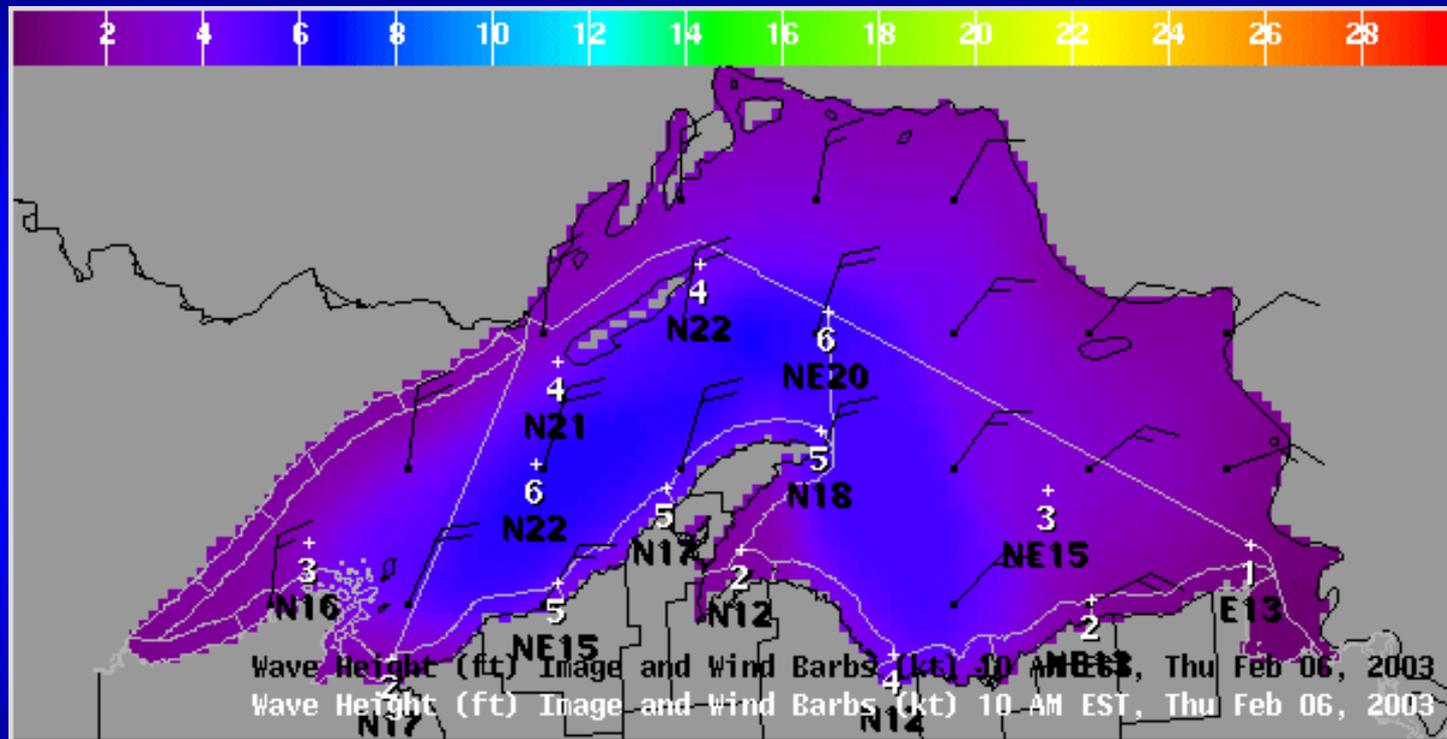


WFO
Portland,OR





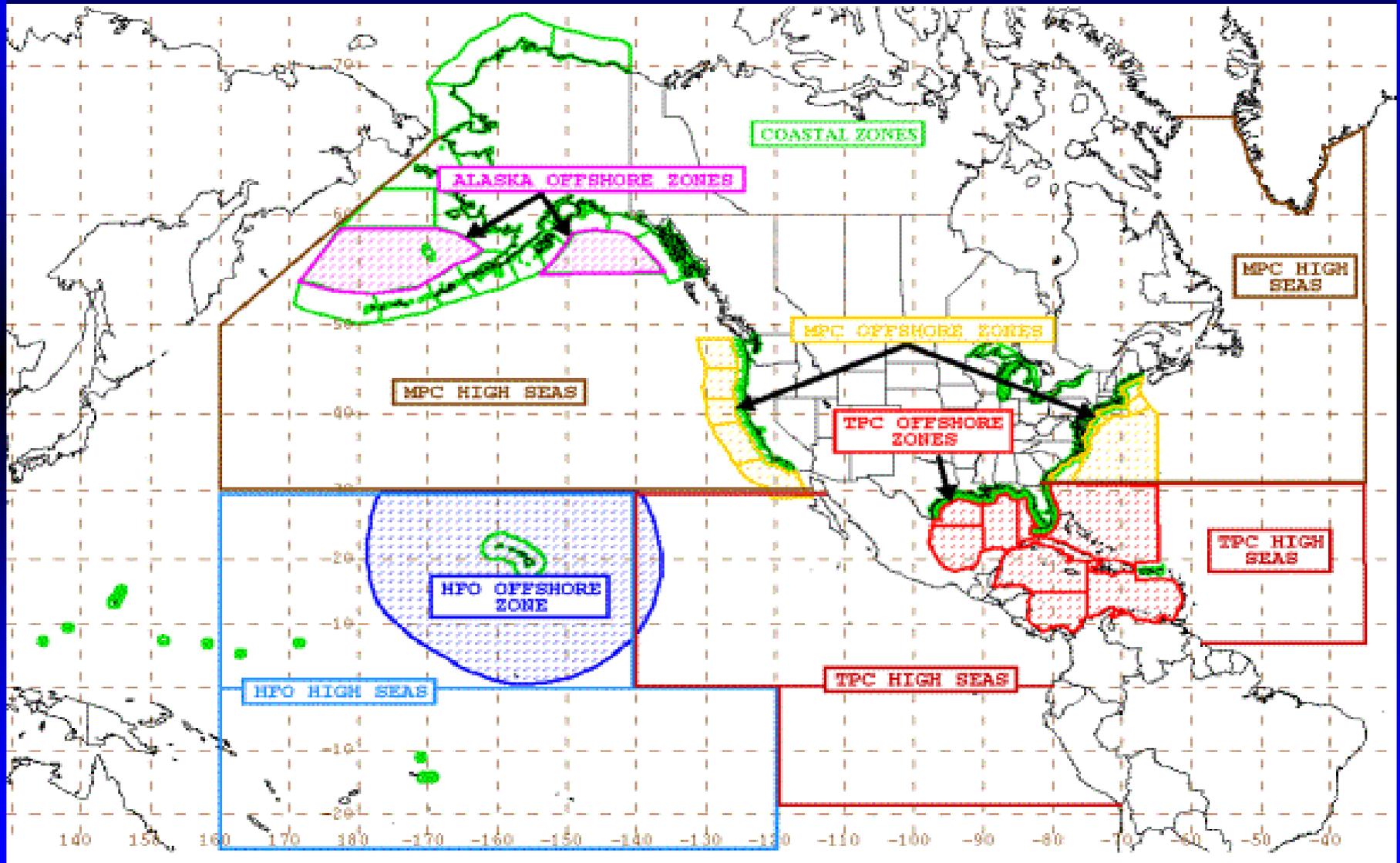
Forecast Winds and Waves for Nearshore and Open Lakes Zones



Lake Superior Forecast by WFO Marquette, MI



Marine and Tropical Forecast Zones



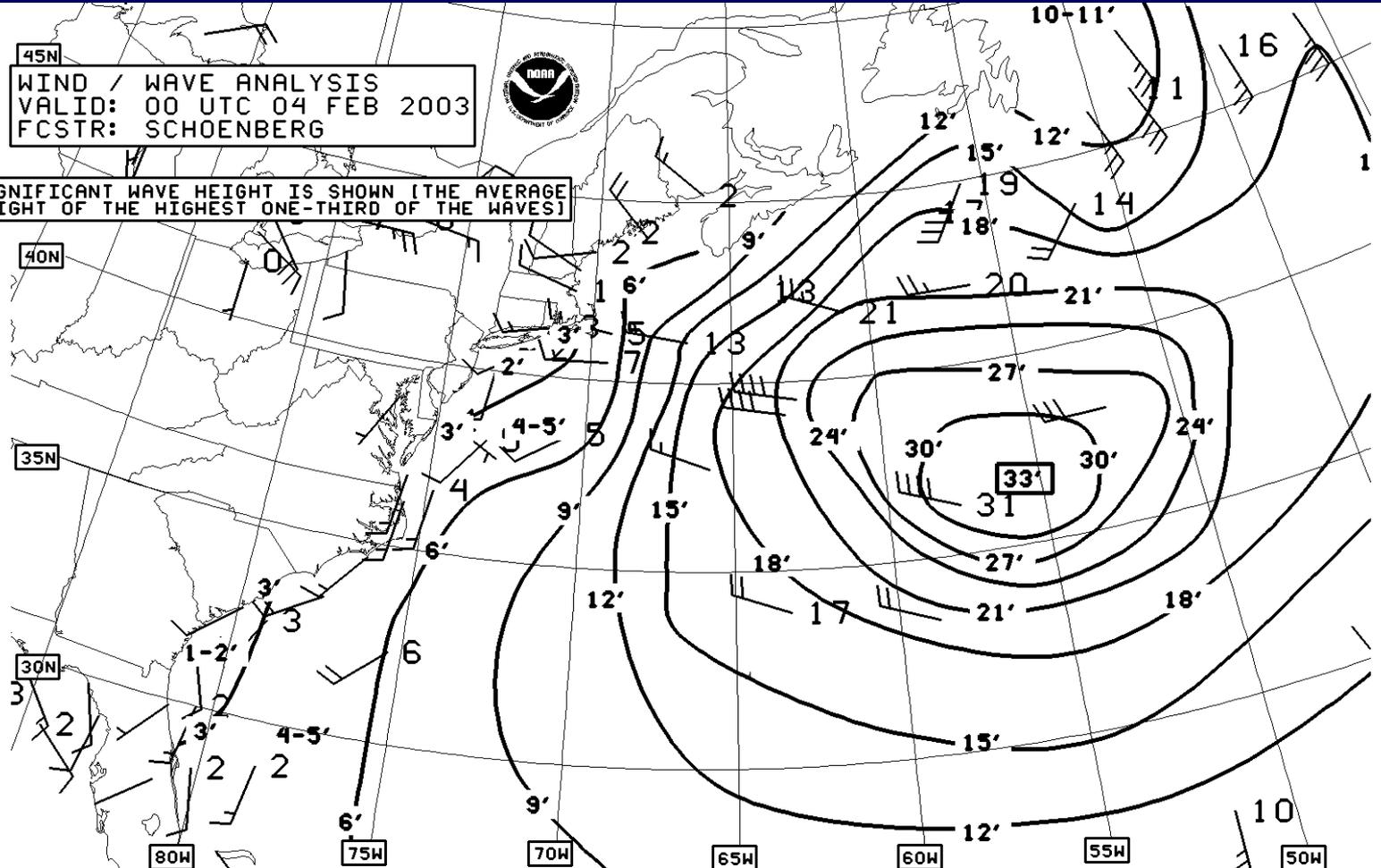


Marine Offshore Graphics

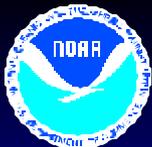
45N
 WIND / WAVE ANALYSIS
 VALID: 00 UTC 04 FEB 2003
 FCSTR: SCHOENBERG



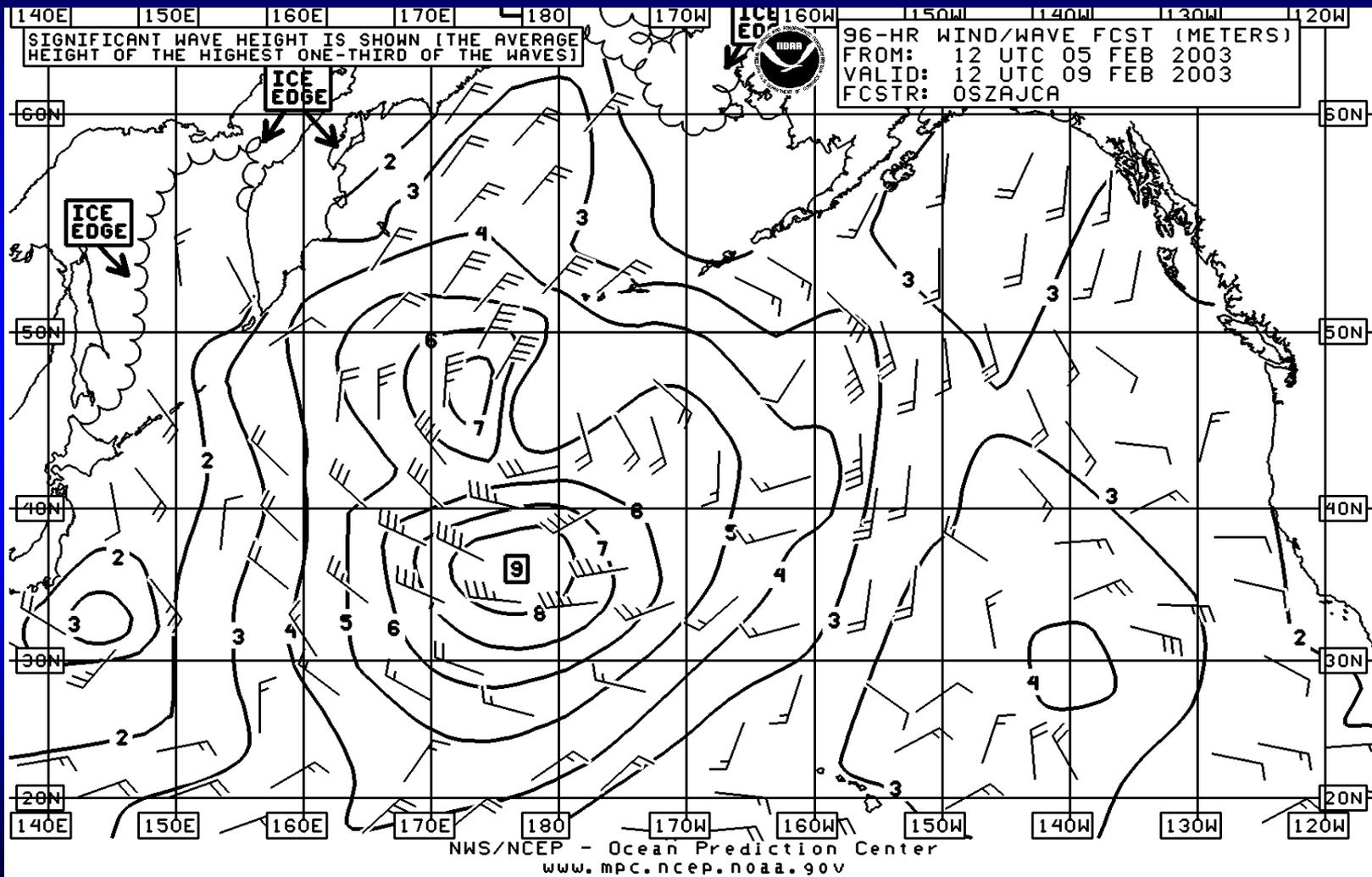
SIGNIFICANT WAVE HEIGHT IS SHOWN (THE AVERAGE HEIGHT OF THE HIGHEST ONE-THIRD OF THE WAVES)



SIG WAVE HGT (FT) & WIND
 NWS/NCEP - OCEAN PREDICTION CENTER
 www.mpc.ncep.noaa.gov

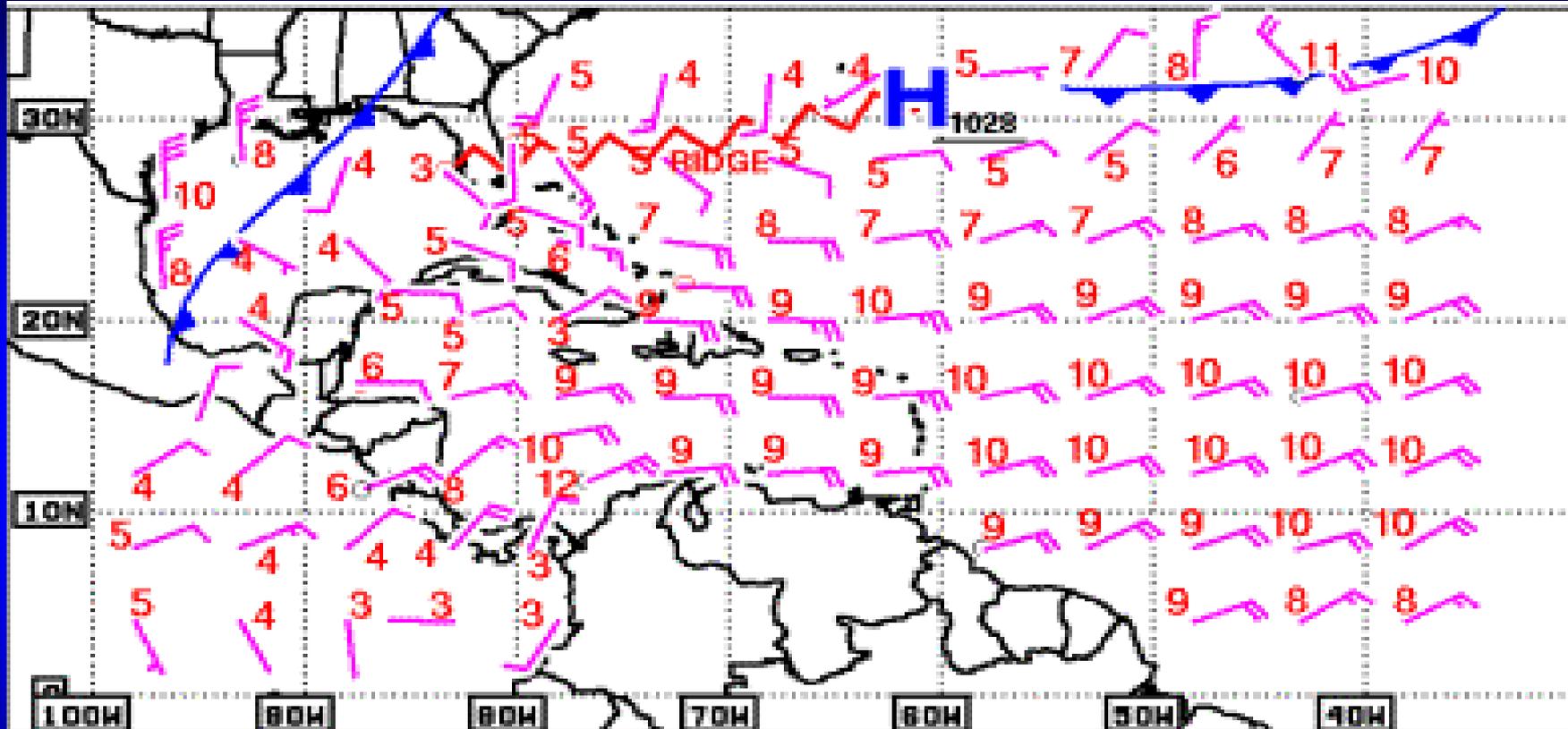


Marine High Seas Graphics





Marine High Seas Graphics



VALID: 12Z FEB 01 2002 - FCSTR: Brown

HIND (KT) & SEAS (FT)
72-HOUR FORECAST
THUNDERSTORMS... SCALLOP LINES



TROPICAL PREDICTION CENTER
TROPICAL ANALYSIS FORECAST BRANCH
MIAMI, FL 33186-2148
WWW.NHC.NOAA.GOV



Initial Marine NDFD Elements



- **Wave Height**
- **General Weather Elements over Coastal Waters, Nearshore and Open Lake Marine Zones:**
 - *Air Temperature (tentatively)*
 - *Surface Wind Direction and Speed (10 meter)*
 - *Weather*



Proposed Marine and Tropical NDFD Elements



- **Wave Period**
- **Wave Steepness**
- **Swell Height and Direction**
- **Visibility**
- **Ice Coverage**
- **Ice Accretion**

- **Extend spatial domain to provide these elements over the Offshore and High Seas Zones**



Proposed Marine and Tropical NDFD Elements (continued)



- **Threat Outlooks for Tropical Cyclone Hazards such as:**
 - *Waves, Surge, Tornadoes, Flash Flood, and Wind*
- **Threat Outlooks for Marine Hazardous Weather such as:**
 - *Waterspouts and Rip Currents*
- **Probabilities of Wind Speed for Tropical Cyclones**
 - *At 34 and 64 knot thresholds*
- **Marine and Tropical Cyclone Watches and Warnings**



Marine and Tropical New Product National Prototyping Plans



- **Plans for Tropical Product**
 - *Graphical Hurricane Local Statement*
 - *Prototyping underway at WFO Melbourne, FL*
 - *Planning tool for decision makers potentially impacted by tropical cyclones*
 - *Grid over coastal land and marine zones*
 - *Tiered threat outlook scale for hazards*
 - *Display threat level for hazards such as:*
 - Storm surge
 - Tornados
 - Flash Flood
 - Waves
 - Wind



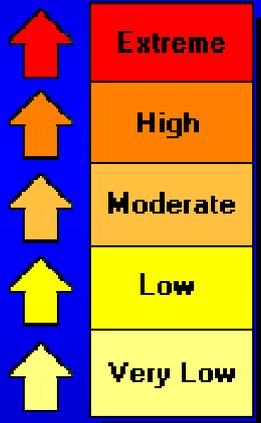
Tropical New Product National Prototyping Plans



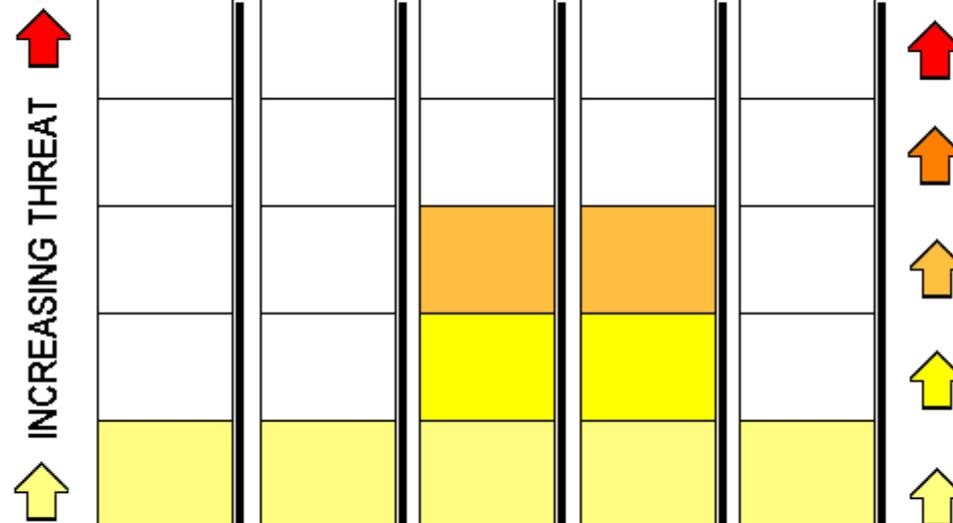
Combined Tropical Cyclone Hazard

Specific to East Central Florida

Marine Threat Levels



Click on color bar for a description of threat level



***DEMO CASE *** THIS STORM IS NOT CURRENTLY OCCURRING



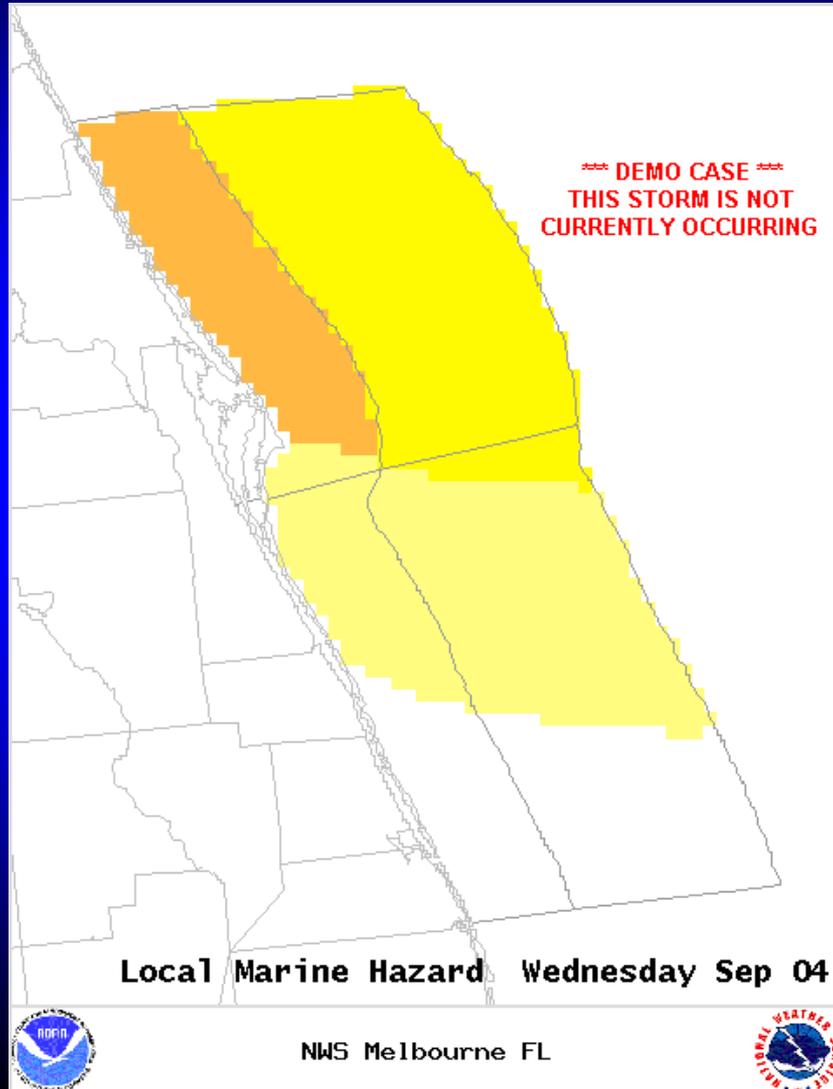
Storm: Tropical Storm Edouard

Issued: 915 PM WED SEP 4 2002





Experimental Outlook for Hazards Associated with Tropical Cyclones



Moderate Threat Level for
Marine Hazard associated
with Tropical Storm
Edouard



Marine and Tropical New Product National Prototyping Plans



- **Plans for Marine Product**
 - *Graphical Hazardous Weather Outlook*
 - *Intended to support both recreational and commercial activities*
 - *Grid over land, surf and coastal marine zones*
 - *Tiered threat outlook scale for hazards*
 - *Display threat level for parameters such as:*
 - Rip Currents
 - Waterspouts
 - Coastal Flooding



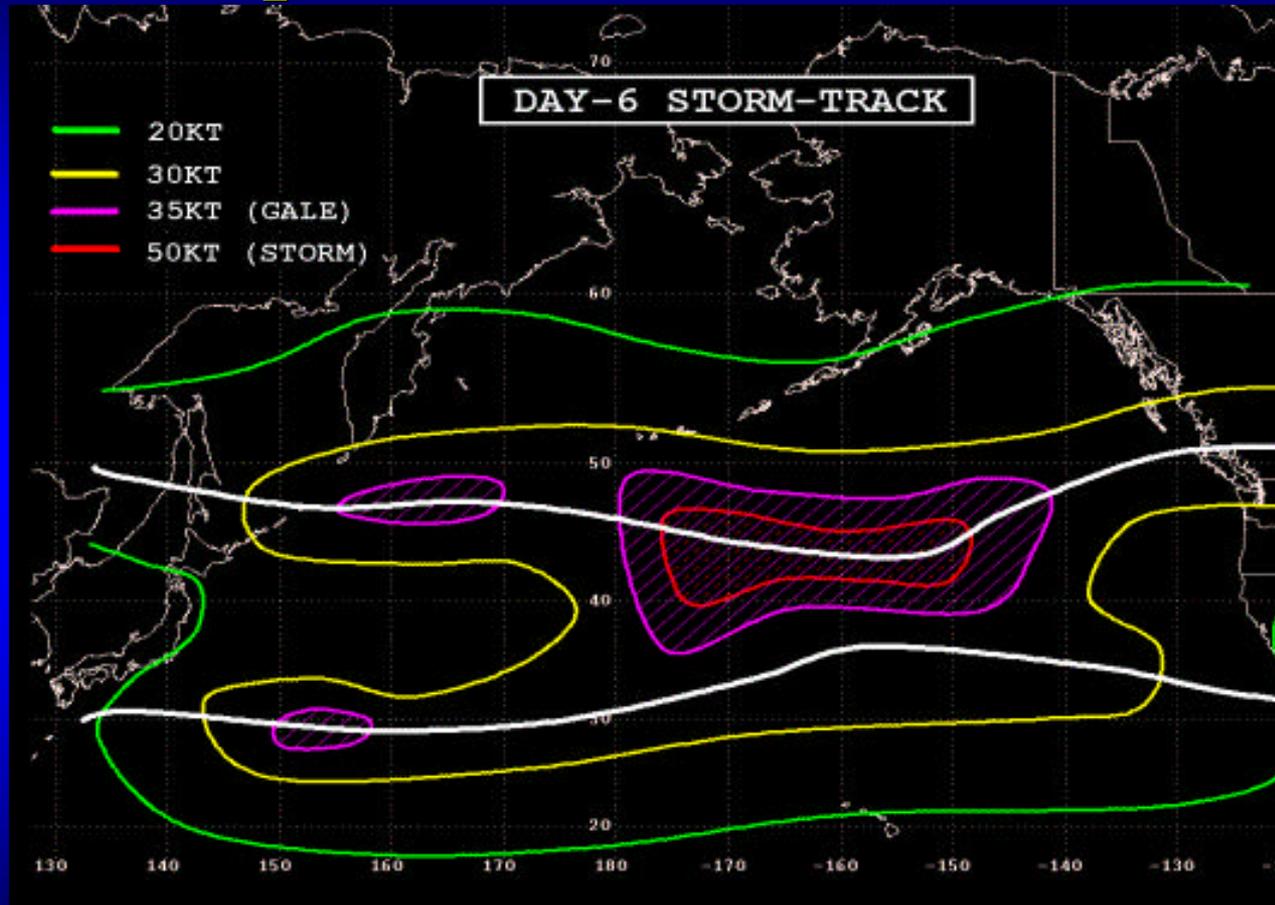
Research Activities in Support of New Marine and Tropical Products



- **At the Ocean Prediction Center:**
 - *Evaluation of Storm Track Product*
- **At the Ocean Prediction and Tropical Prediction Centers:**
 - *Research proposal funded to develop and distribute gridded wind fields*
 - **Enhanced Wind Analyses based upon blend of:**
 - *Remotely sensed wind vectors*
 - *Numerical Model analyses*
 - *Observational data*
- **At the Tropical Prediction Center**
 - *Tropical Cyclone Surface Wind Probabilities*



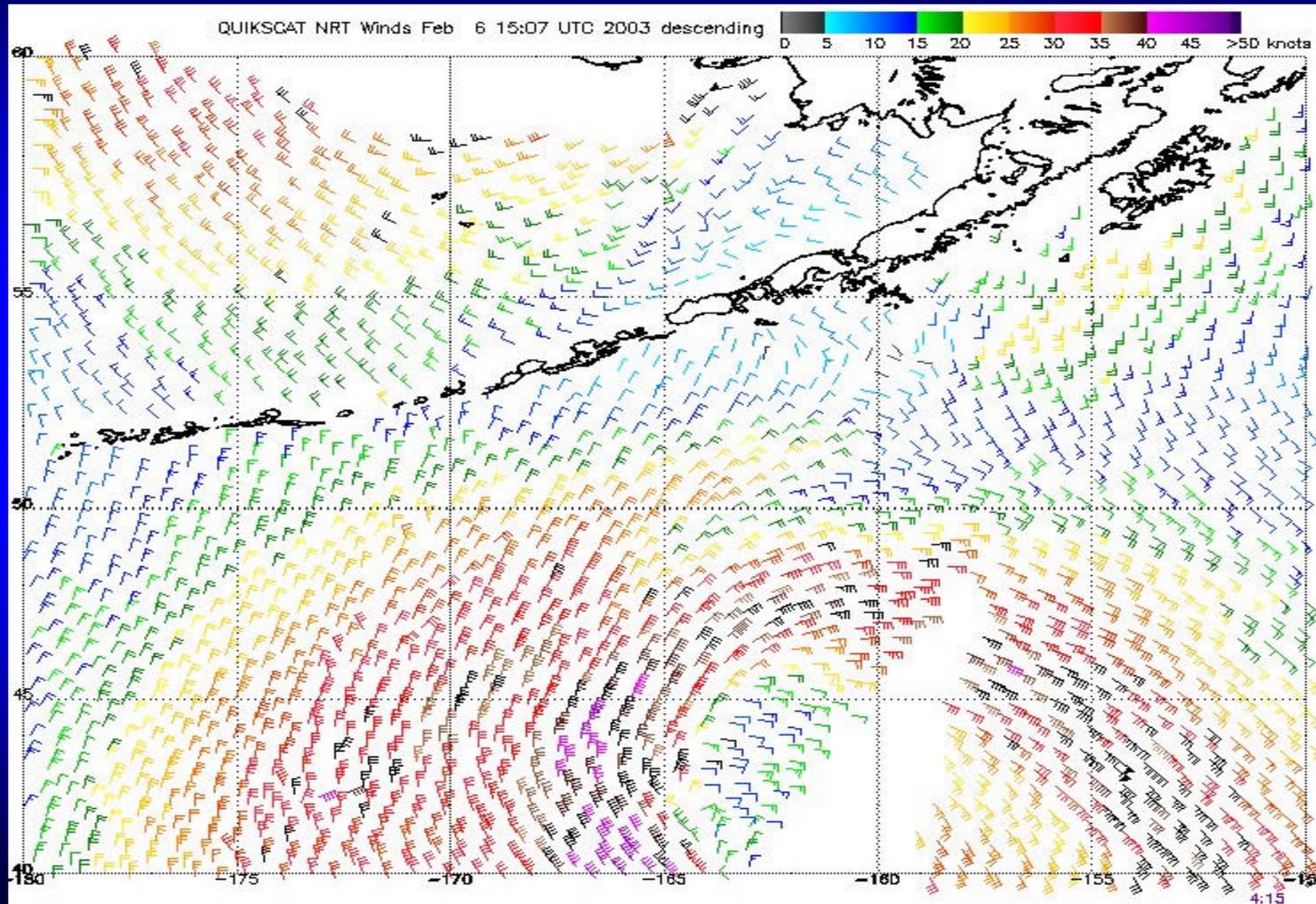
Research Activities in Support of Proposed New Marine Products



Predominant Storm Track graphically depicted in white



Research Activities Using Scatterometer Wind Vector Data



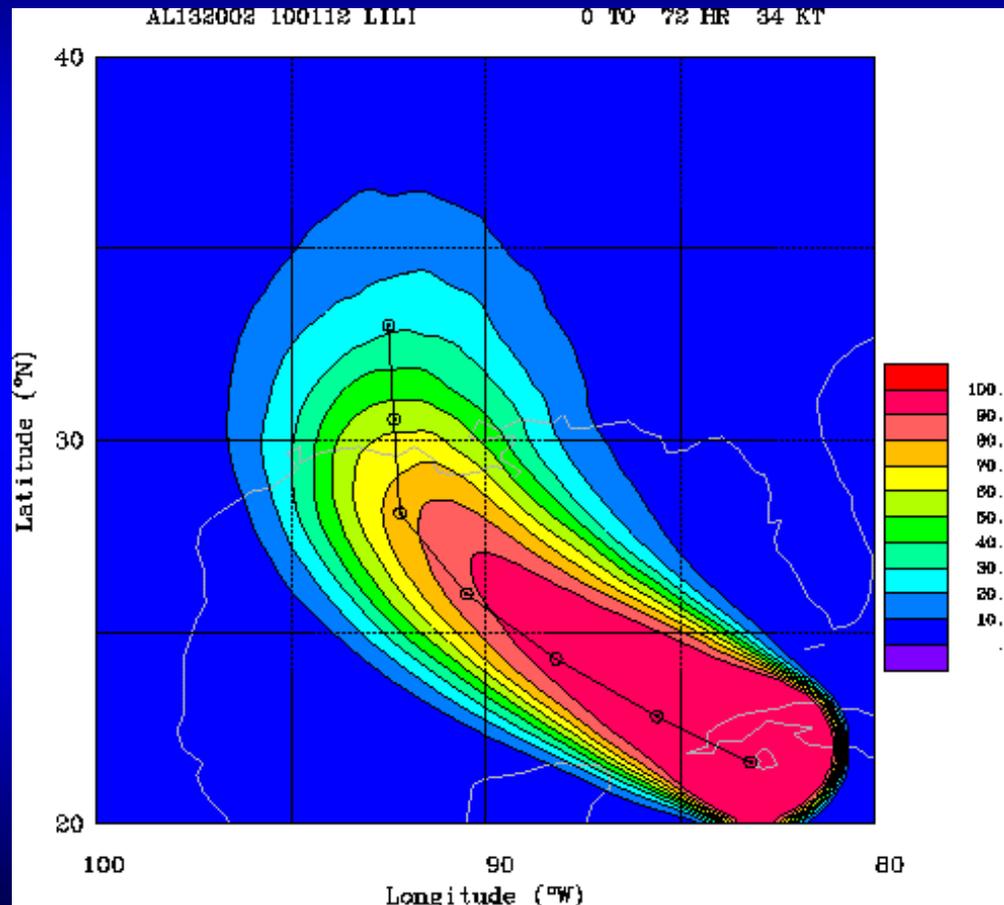
Note: 1) Times are GMT 2) Times correspond to 50N at right swath edge - time is right swath for overlapping swaths at 50N
3) Data buffer is Feb 6 15:07 UTC 2003-22 hrs 4) Black barbs indicate possible rain contamination
NOAA/NESDIS/Office of Research and Applications



Research Activities For Tropical Cyclone Surface Wind Probabilities



72 hour probability
of 34 knot winds
from Hurricane Lili
historical analysis





Hurricane Force Wind Grids Associated with Tropical Cyclones



- Potential for significant track error
- 10 year average 72 hour forecast track error = 222 nautical miles
- Lack scientific capability for predicting extreme events in extended forecast period
- Team established to make policy recommendations and define procedures



Marine and Coastal Services Contacts

- For additional information on our products and services visit our Internet pages:
 - *Marine and Coastal Services*
 - <http://weather.gov/om/marine/home.htm>
 - *Ocean Prediction Center*
 - <http://www.opc.ncep.noaa.gov/>
 - *Tropical Prediction Center*
 - <http://www.nhc.noaa.gov/>
- We welcome your feedback on our plans for Marine, Coastal and Tropical Products
 - *Send comments and questions to*
 - Jamie.Vavra@noaa.gov
 - 301-713-1677 x 111